

ABSTRACT OF THE DISCLOSURE

A method and apparatus for detecting a predetermined condition of a panel, by: transmitting a cyclically-repeating energy wave through the material of the panel from a first location to a second location; measuring the transit time of the cyclically-repeating energy wave from the first location to the second location; and utilizing the measured transit time to detect the predetermined condition of the panel. Examples are described wherein the condition to be detected is: a force on, the temperature of, a deformation in, the fatigue condition of, or a fracture in, a structural panel; the presence of a force applied to, water on, or a breakage in, a window panel; and the presence of an object on a floor panel.